NEW EXOTIC CRANE-FLIES (TIPULIDAE: DIPTERA) PART XXVI ¹

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ABSTRACT: Nine new species from Ecuador are described, these being Zelandotipula daedalus, Zelandotipula hirtistylata, Orimarga (Orimarga) coracina, Orimarga (Orimarga) melanopoda, Shannonomyia gurneyana, Erioptera (Erioptera) acucuspis, Molophilus (Molophilus) coryne, Molophilus (Molophilus) diacaenus, and Molophilus (Molophilus) parvispiculus.

All species described as new at this time were included in materials collected in various provinces of Ecuador by Dr. Ashley B. Gurney, esteemed friend and former student of mine at the University of Massachusetts. Ecuador is very rich in species of this group of flies and students will be aided in their study by consulting the Alexander and Alexander, Catalogue of the Diptera of the Americas south of the United States, Family Tipulidae, pp. 1-259, published by the Museu de Zoologia, Universidade de Sao Paulo, in 1970. This volume includes slightly more than 3000 species in this family of flies, many of which are from Ecuador. I wish to express my deep thanks to Dr. Gurney for supplying me with this further important series of flies. The types of the novelties are preserved in the Alexander Collection, now the property of the Smithsonian Institution.

Zelandotipula daedalus, new species

General coloration of body dark brown, thoracic praescutum virtually covered by four obscure yellow stripes; posterior sclerites of notum patterned with brown and yellow, pleura chiefly light yellow; halteres with stem light brown, the small knobs brown; wings conspicuously patterned with dark and paler areas, as described; longitudinal veins posterior to vein R without major trichia; male hypopygium with tergite transverse, posterior border shallowly emarginate, with abundant blackened pegs; outer dististyle broad basally, outer third narrowed; inner style with beak slender, disk with abundant blackened spinoid points, in the region of the lower beak concentrated into a dense mass.

Male - Length about 15 mm.; wing 17 mm.

Wing and hypopygium on slide. Rostrum brown, nasus long and slender; proximal three segments of palpi black, terminal segment yellow. Antennae with scape and pedicel

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yellow; flagellum broken. Head brown; eyes large, anterior vertex relatively narrow, about three times the diameter of scape.

Pronotum brownish yellow, scarcely patterned. Mesonotal praescutum virtually covered by four obscure yellow stripes that are scarcely differentiated from the ground, margined by very narrow pale brown lines; scutum with lobes dark brown, vaguely patterned laterally by obscure yellow, median line narrowly obscure yellow; scutellum brownish yellow, parascutella clearer yellow; mediotergite chiefly dark brown, with an obscure yellow longitudinal stripe on either side of midline, posterior border darkened; pleurotergite chiefly yellowed, dorsal fourth brown. Pleura chiefly light yellow, very vaguely darker on the anepisternal and sternal regions. Halteres with stem light brown, base clear yellow, knob small, brown. Legs with coxae and trochanters light yellow; remainder of legs broken. Wings conspicuously patterned with dark and paler brown areas, the subequal ground pattern white; cell C chiefly light yellow, Sc pale brown, slightly darker at either end; ground color of wing white, including most of cells R, M, R_1 and R_5 , and basal two-thirds of Cu; conspicuous brown areas in bases of cells R and M, at arculus extended more narrowly backward over bases of cubital and anal cells; brown areas at near one-third cell R and at origin of Rs, at near midlength and at outer end of cell M; other clearly defined markings at tip of Sc and beyond the cord as broad seams in the radial field; cells R_5 , outer medial cells and M_4 chiefly pale; outer ends of cells Cu and 2nd A, with most of cell 1st A, pale brown; veins brown. Veins posterior to vein R without major trichia. Venation: Distal section of R4 &5 strongly sinuous at near midlength, conspicuously narrowing cell R_3 : petiole of cell M_1 nearly three times m; m-cu beyond midlength of $M_{3\&4}$.

Basal abdominal segments brownish yellow, outer segments more uniformly dark brown, lateral borders yellowed. Male hypopygium (Fig. 1) with the tergite, t, having the posterior border broadly and shallowly emarginate, with abundant blackened pegs, shorter and more crowded on the conspicuous lateral extensions, near the midline replaced by more sparse strong setae. Outer dististyle, d, broad basally, outer third narrowed; inner style, id, with beak slender; disk with abundant blackened spinoid points, outwardly more scattered, in region of lower beak concentrated to form a dense blackened mass. Phallosome with gonapophyses, g, as shown; aedeagus very long and

slender, filiform.

Habitat — Ecuador. Holotype of: Manabi Province, about 3.5 km east of Portoviejo, near a waterfall, May 10, 1975 (A.B. Gurney).

Other generally similar regional species include Zelandotipula acutistyla (Alexander), Z. cristifera (Alexander), and Z. vivida (Alexander), all of Ecuador, Z. retrorsa (Alexander), Colombia, and Z. sinuosa (Alexander), Peru, all differing most evidently in hypopygial characters, including especially the tergite and both dististyles.

Zelandotipula hirtistylata, new species

General coloration of body dark brown; antennae and legs brown; wings uniformly light gray, without evident pattern; veins R_3 and $R_{4\&5}$ scarcely sinuous, nearly parallel; male hypopygium with tergite short and broad, lobes

very low, with abundant long black setae; outer dististyle subrectangular in outline, with abundant very long dark setae; inner style posterior border strongly emarginate, the outer end larger than the base, with compact groups of small spinoid setae.

Male - Length about 15 mm.; wing 17.5 mm.; antennae about 3.3 mm.

Head and hypopygium on slide. Rostrum and palpi brown; terminal segment of maxillary palpus about one-third longer than the basal three combined. Antennae brown; about one-half longer than the palpi; flagellar segments short-cylindrical, the intermediate segments about twice as long as broad, terminal segment slender; antennal vestiture very small and abundant. Head brown.

Prothorax brown. Mesonotal praescutum dark brown with four paler brown stripes that become confluent at the suture; posterior sclerites of notum pale brown, scutellum with sparse yellow setae. Pleura dark brown. Halteres yellow, elongate, knobs small. Legs brown; claws long and slender, smooth. Wings uniformly light gray, without a clearly evident pattern, stigma barely differentiated; very vague small more whitened areas in cells M_1 , $2nd\ M_2$ and M_3 , and in cell $1st\ A$ near termination of vein $2nd\ A$; veins pale brown. Macrotrichia on Rs, R_3 and R_4 &5; vein M with about six very small scattered trichia on base of vein $2nd\ A$ before the arculus. Venation: Veins R_3 and R_4 &5 nearly parallel to one another, scarcely sinuous as in most other species of the genus; petiole of cell M_1 about one-third longer than m; m-cu at near two-thirds M_3 &4.

Abdomen of type distorted and details difficult to see; segments light brown, posterior borders darker brown, more extensive on outer segments. Male hypopygrium (Fig. 2) with the tergite, t, very short and broad; posterior border shallowly emarginate, lobes very low, with abundant long black setae. Outer dististyle, d, subrectangular in outline, gradually narrowed outwardly, apex truncate; surface with very abundant long dark setae, especially on posterior and apical portions; inner style about as shown, posterior border strongly emarginate, the outer end of style larger than the base; beak a stout extension of remainder of style, without emargination; a compact oval group of small blackened spinoid points, the lower beak with a comparable linear row. Phallosome with apophyses, g, obtusely rounded.

Habitat – Ecuador. Holotype of: Pichincha Province, 41 km east of Quito, May 15, 1975 (A.B. Gurney).

The present fly is most readily told from other generally similar species by the gray virtually unpatterned wings, and in the structure of the hypopygium, especially the tergite and outer dististyle. Other regional species with the wings only slightly patterned include Zelandotipula bisatra (Alexander), of Bolivia; Z. calvicornis (Edwards), Ecuador; Z. corynostyla (Alexander), Colombia; Z. monostictula (Alexander), Peru; and Z. nigrosetosa (Alexander), Peru, all differing among themselves in body coloration and in hypopygial structure.

Orimarga (Orimarga) coracina, new species

General coloration intensely black; head gray; thoracic pleura with two narrow silvery longitudinal stripes; wings strongly blackened, more intensely

in the radial field; Rs and $R_{1\&2}$ unusually long; male hypopygium with gonapophyses distinctive, as described.

Male - Length about 8 mm.; wing 6 mm. Female - Length about 8 mm.; wing 5.9 mm.

Rostrum and palpi black, Antennae black throughout, Head above light gray

medially, darker gray on sides.

Thorax intensely black, laterally with two narrow silvery longitudinal lines, the dorsal one extending from the cervical region to the wing root along lateral border of praescutum, ventral stripe slightly broader, occupying the dorsal part of the very extensive sternopleurite and the meral region. Halteres with stem dark brown, knob black. Legs with coxae and trochanters blackened; remainder of legs broken. Wings strongly blackened, more intensely in the radial field; prearcular field and extreme bases of cells R and M more whitened, together with a narrower whitened line along outer end of vein M and along $M_{1\&2}$ to apex, less evident on veins M_3 and M_4 . Veins beyond cord with long black trichia, including veins $R_{1\&2}$ to M_4 , inclusive. Venation: R_5 very long, slightly exceeding the veins beyond it; $R_{1\&2}$ long, nearly twice the basal section of $R_{4\&5}$; m-cu distal in position, about opposite the outer sixth of R_5 ; cell M_3 slightly longer in male, more than twice vein M_3 &4.

Abdomen very long, especially in male, intensely black. Male hypopygium (Fig. 3) about as shown; dististyles, d, nearly as long as the basistyle. Phallosome complex in structure, especially the gonapophyses, g, as shown. This has the apical setuliferous lobule of the longer arm microscopic in size; lateral hinged blade shaped about as shown,

broadly subtriangular in outline.

Habitat — Ecuador. Holotype ♂: Napo Province, 72 km east of Baeza, altitude 4200 feet, May 16, 1975 (A.B. Gurney). Allotype: ♀, on pin below the holotype.

Other similar blackened regional species include *Orimarga (Orimarga)* chionopus Alexander, O. (O.) saturnina Alexander, and O. (O.) scabriseta Alexander, of Ecuador, and O. (O.) funerula Alexander, of Peru. Some of these generally similar species have the tarsi white while others are dark throughout. All such species are most readily separated by hypopygial characters, including the unusually complex gonapophyses. I have included in this paper illustrations of four of these Ecuadorian species, *Orimarga (Orimarga) melanopoda*, Fig. 4; O. (O.) chionopus, Fig. 5 A; O. (O.) saturnina, Fig. 5 B; O. (O.) scabriseta, Fig. 5 C.

Orimarga (Orimarga) melanopoda, new species

General coloration intensely black; head gray; thoracic pleura with two relatively broad silvery longitudinal stripes; wings blackened; Rs very long, exceeding the outer radial branches beyond it; $R_{1\&2}$ relatively short, about one-fourth Rs; male hypopygium with phallosome complex in structure, especially the gonapophyses, the lateral arm of which is relatively short and stout, without a modified setuliferous lobe.

Male - Length about 6.5 - 7.5 mm.; wing 5.4 - 5.5 mm.

Female - Length about 8 mm.; wing 5 mm.

Rostrum and palpi black. Antennae black, pedicel slightly paler. Head black, light

gray pruinose.

Thorax intensely polished black, laterally with two conspicuous silvery longitudinal stripes, the ventral one broader. Halteres black. Legs with coxae black; trochanters slightly paler; remainder of legs black. Wings strongly blackened, costal border more intensely so; prearcular cells whitened; a narrow whitened line along outer end of Rs and vein $M_{1\&2}$ to margin. Trichiation of veins much as in *coracina*. Venation: Rs very long, exceeding the veins beyond it; $R_{1\&2}$ relatively short, about one-fourth Rs, much shorter than in *coracina*.

Abdomen very long, black. Male hypopygium (Fig. 4) with details of structure about as shown. Dististyles, od, slightly shorter than the basistyle, the outer end very slender, sinuous. Gonapophysis, g, as shown, the longer arm blackened, relatively short and stout, without a modified apical lobe as in allied species; lateral hinged blade with outer portion expanded basally, outer half a strong blackened spine.

Habitat — Ecuador. Holotype &: Manabi Province, 79 km west of Santo Domingo, near spring seepage, May 8, 1975 (A.B. Gurney). Allotopotype, ♀, pinned with type. Paratopotypes, ♂♀, with types.

A list of the generally similar regional species and references concerning the various allies is given under the preceding species.

Shannonomyia gurneyana, new species

Size medium (wing of female 9 mm.); general coloration of body brown, thoracic praescutum with three vague light brown stripes; legs black; wings whitened, veins light yellow, cord and apices of marginal veins blackened; Rs very long; cell $Ist\ M_2$ long, nearly twice the distal section of vein $M_{1\&2}$.

Female - Length about 9 mm.; wing 9 mm.

Rostrum brownish gray; mouthparts small, black. Antennae broken. Head brownish

gray with a very narrow darker central line on vertex.

Pronotum gray, with scattered black setigerous punctures. Mesonotal praescutum gray with three vague light brown stripes, the central area narrow on anterior third, behind divided into two lines, lateral stripes very pale brown; posterior sclerites of notum brownish gray, centers of scutal lobes vaguely light brown, postnotum light gray. Pleura light gray, dorsopleural membrane pale brown. Halteres light yellow, apex of knob weakly darkened, Legs with coxae gray, trochanters yellowish brown; remainder of legs black. Wings (Fig. 6) whitened, prearcular and costal fields vaguely light yellow; veins light yellow, those comprising the cord and the broad apices of veins $R_{1\&2}$, R_{2} , R_{3} , R_{4} , M_{3} , M_{4} , Cu and both Anals broadly black; further darkenings include origin of Rs and outer end of cell $Ist\ M_{2}$. Venation: $Sc\ long$, Sc_{1} ending shortly before fork of Rs, Sc_{2} removed from tip; Rs very long, exceeding the veins beyond it, at origin nearly perpendicular, with a conspicuous spur beyond base; elements of cord oblique, tips of veins R_{3} and R_{4} slightly upcurved; cell $Ist\ M_{2}$ long, nearly twice the distal section of vein $M_{1\&2}$; m-cu about its length beyond the fork of M.

Abdomen uniformly dark brown, slightly pruinose. Ovipositor with valves long and slender, nearly straight.

Habitat - Ecuador. Holotype 9: Pichincha Province, 41 km east of Quito,

May 15, 1975 (A.B. Gurney).

This distinct species is dedicated to my dear friend, Dr. Ashley B. Gurney. The most similar regional members of the genus include *Shannonomyia austrolathrea* Alexander, of Ecuador and Bolivia, and *S. vocator* Alexander, Ecuador, differing evidently in the wing pattern and details of venation, including the radial and medial fields.

Erioptera (Erioptera) acucuspis, new species

Size relatively large (wing of male about 6.5 mm.); general coloration of body dark brown to brownish black, thorax sparsely pruinose; halteres with stem yellow, knob blackened; legs black; wings almost uniformly light brown, stigma scarcely evident; male hypopygium with apex of inner dististyle terminating in a low blackened point.

Male - Length about 7 mm.; wing 6.5 mm.

Rostrum and palpi black. Antennae with scape and pedicel black; flagellum broken.

Head brownish black, lateral borders of vertex narrowly paler gray.

Prothorax dark brownish gray, pretergites clear light yellow. Mesonotum almost uniformly dark brownish gray, praescutum anteriorly slightly darker, postonotum more uniformly blackened; posterior border of scutellum narrowly obscure yellow. Pleura and sternum brownish gray. Praescutal interspaces, median region of scutum, scutellum and dorsal pleurotergite with sparse long pale setae. Halteres with stem light yellow, knob small, blackened. Legs with coxae brownish gray; trochanters yellowish brown; femora black, posterior pair slightly paler basally; remainder of legs black. Wings almost uniformly light brown, stigma scarcely evident, prearcular field more yellowed; veins brown, trichia relatively long. Venation almost as in andina; vein 2nd A at midlength strongly sinuous.

Abdomen black, sparsely pruinose. Male hypopygium (Fig. 7) with median area of tergite, t, produced, apex shallowly emarginate, the border with abundant microscopic tubercles. Outer dististyle, d, long and slender, apex acute; inner style distinctive, as shown; base broad, narrowed at midlength, outer margin with a slender acute black spine, apex of style narrowed, terminating in a low blackened point. Interbase, i, with apical half an acute spine. Phallosome, p, with arms of aedeagus, a, strongly recurved, outer margin at bend with a low expansion. The dististyles of Erioptera (Erioptera) andina are shown for comparison (Fig. 7 B); apex of inner dististyle, d, a simple suboval blade, without apical armature.

Habitat – Ecuador. Holotype of: Pichincha Province, 41 km east of Quito,

May 15, 1975 (A.B. Gurney).

The most similar regional species is *Erioptera* (*Erioptera*) andina Alexander (1913), described from Colombia, ranging south to northwestern Argentina. This is most readily told by hypopygial structure, as discussed above.

Molophilus (Molophilus) coryne, new species

Size medium (wing male, 5 mm.); general coloration brown; male hypopygium with apical spine of basistyle surrounded at base by numerous strong setae; inner dististyle a blackened club, outer half expanded, apex with a compact mass of black setae and with a long ventral spine; aedeagus very long and slender, pale; phallosome small, suboval in outline, apex rounded.

Male - Length about 4.5 mm.; wing 5 mm.

Described from type mounted on slide, Rostrum and palpi light brown; remainder of head dark brown. Antennae broken at fifth segment, brown; proximal flagellar segments long-subcylindrical; fifth segment almost identical in size and conformation to the terminal segment of the maxillary palpi.

Thorax almost uniformly dark brown. Legs with coxae and trochanters pale; remainder of legs broken. Wings pale gray, base and costal border slightly more yellowed; vicinity of cord in radial field with a broad somewhat darker suffusion; veins pale.

Abdomen dark brown. Male hypopygium (Fig. 8) with apical spine of basistyle, b, straight, black, its base surrounded by numerous strong setae. Outer dististyle, d, with inner apical point broad; basal dististyle distinctive, appearing as a blackened clavate structure, the basal half more slender; apex with very abundant black setae forming a compact mass, lower apical angle of style extended into a long stout spine; surface of more than outer half of style with scattered setae, on lower face on weak tubercles. Aedeagus, a, very long and slender, pale, narrowed very gradually outwardly, its total length slightly exceeding that of the basistyle, Phallosome, p, an unusually small suboval lobe, the apex rounded.

Habitat – Ecuador. Holotype &, on slide: Napo Province, 22 km west of Baeza, 8000 feet, May 15, 1975 (A.B. Gurney).

Other regional Andean species that have the basal dististyle of the hypopygium generally similar to that of the present fly but differing in details include *Molophilus (Molophilus) grus* Alexander, of Peru, *M. (M.) pallatangae* Alexander, Ecuador; *M. (M.) perseus* Alexander, Colombia; *M. (M.) piger* Alexander, Peru, Bolivia; *M. (M.) platyphallus* Alexander, Ecuador, and *M. (M.) walkeri* Alexander, Colombia.

Molophilus (Molophilus) diacaenus, new species

General coloration of body black, slightly pruinose, especially the thorax; antennae short; halteres and legs brownish black; male hypopygium with apical spine of basistyle straight, black; inner dististyle with outer arm a strong spine, with a smaller appressed lateral point.

Male - Length about 5 mm.; wing 5 mm.; antenna about 1.0 mm.

Rostrum and palpi black. Antennae black; proximal flagellar segments long-cylindrical, the longest verticils exceeding the segments; outer segments progressively shorter, subcylindrical, the verticils short. Head dark gray.

Thorax almost uniformly dark gray, praescutal stripes vaguely more darkened; pretergites narrowly light yellow. Pleura black, sparsely pruinose. Halteres brownish black, apex of knob vaguely paler. Legs with coxae and trochanters blackened, remainder of legs brownish black. Wings weakly darkened, prearcular and costal fields slightly more yellowed; veins light brown. Trichia of veins longer than those comprising the costal fringe.

Abdomen brownish black. Male hypopygium (Fig. 9) with apical spine of basistyle, b, straight, black, the setae surrounding its base slender, pale and inconspicuous. Outer dististyle, d, with arms blackened, outer arm long and more slender; inner or basal dististyle with proximal two-thirds stout, outerly with two spines, the axial one long, gently curved to an acute point, lateral spine short, acute. Aedeagus, a, long and slender, yellow, slightly sinuous, about one-half longer than the inner dististyle.

Habitat — Ecuador. Holotype, & Pichincha Province, 41 km east of Quito, May 15, 1975 (A.B. Gurney).

Other regional Andean species that have the basal dististyle of the hypopygium generally similar to that of the present fly include *Molophilus* (*Molophilus*) perstrictus Alexander, of Peru, and M. (M.) subappressus Alexander, Chile, all differing among themselves in details.

Molophilus (Molophilus) parvispiculus, new species

Size medium (wing of male 4.2 mm.); general coloration of body brown; halteres yellow; male hypopygium with apical spine of basistyle slender, near its base with sparse yellow setae; inner dististyle at apex with about five spines of different sizes, upper surface of style more dilated, with several

(Symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; i, interbase; id, inner dististyle; od, outer dististyle; p, phallosome; f, 9th tergite.)

Fig. 1, Zelandotipula daedalus, n. sp; male hypopygium.

Fig. 2, Zelandotipula hirtistylata, n. sp; male hypopygium.

Fig. 3, Orimarga (Orimarga) coracina, n. sp; male hypopygium.

Fig. 4, Orimarga (Orimarga) melanopoda, n. sp; male hypopygium.

Fig. 5A, Orimarga (Orimarga) chionopus Alexander, male hypopygium.

Fig. 5B, Orimarga (Orimarga) saturnina Alexander, male hypopygium,

Fig. 5C, Orimarga (Orimarga) saturnina Alexander, male hypopygium.

Fig. 6, Shannonomyia gurneyana, n. sp; venation.

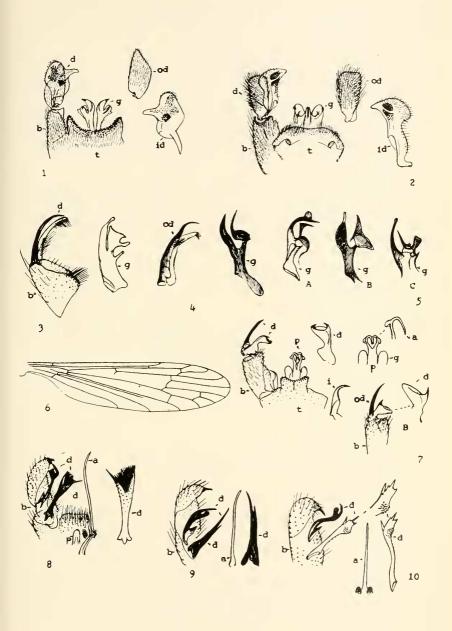
Fig. 7, Erioptera (Erioptera) acucuspis n. sp; male hypopygium.

Fig. 7B, Erioptera (Erioptera) andina Alexander; male hypopygium.

Fig. 8, Molophilus (Molophilus) coryne, n. sp; male hypopygium.

Fig. 9, Molophilus (Molophilus) diacaenus, n. sp; male hypopygium,

Fig. 10, Molophilus (Molophilus) parvispiculus, n. sp; male hypopygium.



denticles and microscopic tubercles; aedeagus moderately long, straight, shorter than the basistyle.

Male - Length about 4.5 mm.; wing 4.2 mm.

Rostrum and palpi black. Antennae black; flagellar segments long-oval, with delicate erect pale setulae, upper face with two or three long black verticils, the more basal one very long, exceeding twice the length of the segment. Head black, sparsely pruinose.

Prothorax and anterior end of praescutum dark brown, remainder of notum paler brown, more yellowed laterally. Pleura almost uniformly dark brown anteriorly, posterior sclerites paler brown. Halteres yellow. Legs with coxae and trochanters yellowed; remainder of legs pale yellowish brown, outer tarsal segments only slightly darker. Wings pale brown, stigma more suffused, prearcular region slightly more yellowed; veins pale brown.

Abdomen dark brown. Male hypopygium (Fig. 10) with apical spine of basistyle, b, slender, near its base with sparse weak yellow setae. Outer dististyle, d, with inner apical point broad, outer arm long and slender, gently sinuous. Inner dististyle, d, distinctive, subequal in length to the outer style; apex slightly dilated, bearing about five spines of different sizes, two being larger; upper surface of apex more protuberant, with several low denticles and microscopic tubercles. Aedeagus, a, moderately long, straight, slightly widened before midlength, shorter than the basistyle.

Habitat — Ecuador. Holotype, & Napo Province, 110 km west of Lago Agrio, 5400 feet, May 18, 1975 (A.B. Gurney).

Other regional Andean species that have the inner dististyle of the hypopygium generally similar to that of the present fly, differing in important details, include *Molophilus (Molophilus) avitus* Alexander, of Ecuador; *M. (M.) brownianus* Alexander, Ecuador; *M. (M.) panchrestus* Alexander, Peru, and *M. (M.) tucumanus* Alexander, Argentina.

EDITORIAL COMMENT

The preceding article is especially noteworthy because Dr. Alexander indicates it is his 1000th paper. His first paper on insects was published in ENTOMOLOGICAL NEWS in 1910 and over the past 66 years, he has had papers published in 33 different countries. He indicates he is still working on further papers. Both he and we hope his health will allow him to continue working on his favorite family, the Tipulidae, for many years to come. ENTOMOLOGICAL NEWS congratulates Dr. Alexander on his tremendous contributions to the study of crane flies and is proud to have had a long standing association with this great entomologist.